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Colorado: Options to Increase Water Supply and Improve Efficiencies

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Mr. Chairman, members of the Committee, and members from Colorado, good morning and thank you for the opportunity to offer testimony today on the important topic of Colorado water supplies and water use efficiency.

Trout Unlimited

Trout Unlimited (TU) is a national, non-profit organization with 130,000 members, of whom over 8000 belong to our Colorado Council. Trout Unlimited's mission is to conserve, protect and restore coldwater fisheries and their watersheds. In 1998, TU established the Western Water Project which now has offices in five states in the inter-mountain west. We participate, primarily at the state level, in decisions affecting water quality and water allocation to ensure healthy coldwater stream flows and foster meaningful public input into these decisions.

My Background

I opened the Colorado Water Project office in 1998. My previous experience in water matters dates back 20 years to the Office of the Colorado Attorney General where I represented the Water Quality Control Division and Commission, the State Engineer and the Colorado Water Conservation Board. I then worked at the Environmental Defense Fund where I spent half of my time on water matters, including the fight against Two Forks Dam and Reservoir. Prior to starting at TU, I represented Kaiser-Hill, the contractor responsible for cleaning up the former nuclear weapons facilities at Rocky Flats; in that capacity I was involved in the renewal of the site's Clean Water Act discharge permit. I have also taught Environmental and Administrative Law at the University of Denver College of Law, and worked as counsel to the House of Representatives Armed Services Committee. I last testified before this subcommittee in March 2002 regarding HR 3881, a bill involving the proposed expansion of the Bureau of Reclamation's Fryingpan-Arkansas project.

A Sustainable Strategy to Meet Colorado's Water Needs

In 2002, Colorado endured one of the worst droughts in its history. A year later, many reservoirs have yet to refill. Colorado's population growth is placing significant additional demands on our water resources. Water policies at all levels of government needs to encourage sustainable supplies of good quality water for all Colorado residents without excessive costs or environmental damage.

In January 2003, the conservation community released a report, What the Drought Means for the Future of Water Management in Colorado. I have attached copies of the Executive Summary to this testimony. Written by water policy experts, the Report examines the hydrology of the drought, its economic impact, and the responses of water suppliers. The Drought Report suggests smart supply and smart storage principles to guide future water management. I would like to focus on these common sense solutions to our common problems.

Smart supply alternatives can substantially increase the amount of available water by using existing water supplies fully and efficiently. For example:

- Strengthen conservation and efficiency programs. While this is primarily the province of local providers, state and federal government agencies may be able to provide financial and technical assistance. Just a few of the programs that have been demonstrated to reduce urban water use are program to detect and fix system leaks, rebates for re-landscaping and efficient appliances, and tiered block rate structures.
- Reclaim unusable space in existing reservoirs. Colorado's State Engineer estimates that, due to safety restrictions on reservoirs, as much as 250,000 acre feet of storage that currently exists in the state is unusable. Fixing the problems would allow the State Engineer to lift these restrictions, thereby recovering this space for active storage. In addition, many of the state's older reservoirs would be able to increase active storage capacity were they dredged.
- Expand the ability of water users to share supplies through leasing, water banks and other arrangements. While Colorado has an active water market, our court-based system has made it difficult to move water around quickly and on a short-term basis. The state legislature enacted several bills in 2003 that begin to remedy this situation, but more work is necessary before water users will truly be able to share water easily in response to drought, or for other market-driven reasons.
- Integrate existing infrastructure in a way that allows all water users within a geographic area to maximize their rights. The Drought Report describes several examples where the ability to integrate infrastructure would result in a direct increase in Front Range water supplies. Later in this testimony, I give several examples of how Front Range providers could use existing federal facilities to supply water rather than build new diversions and storage.

Smart storage principles optimize already claimed water supplies to increase useable supply. For example:

- Use existing water supplies and usable return flows fully and efficiently. Efficiency programs in Colorado's urban areas are spotty, and Front Range water providers have been reluctant to reuse water due to consumer sensitivities, despite water court decrees directing this reuse, although Colorado Springs does reuse treated effluent on city turf.
- Expand existing diversion and storage capacities incrementally to enhance providers' flexibility to respond to increased needs as they appear. This is the strategy that Denver has successfully pursued since EPA vetoed its enormous, proposed Two Forks Dam and Reservoir project over a decade ago.
- Involve all of the affected interests, not just the water users, in crafting mitigation to eliminate or lessen environmental and socioeconomic impacts. For example, because the market is now driving water transfers from agriculture to municipal uses, participants should structure such transfers, where possible, to maintain agriculture, and under any circumstances to mitigate the adverse impacts to rural communities. A successful example of where this has happened is in the Upper Arkansas River Basin where the local water conservancy district led a negotiation effort with the City of Aurora, basin water rights holders and other basin interests, including rafting

businesses and Trout Unlimited's local chapter regarding Aurora's plan to take water out of that basin.

- Emphasize the most efficient utilization of existing supplies to avoid the problems and inequities of new transbasin projects. The most recent example is the Big Straw. Last month, the Colorado Water Conservation Board released a reconnaissance level study that predicted the costs of this project could reach $15 billion. New transbasin diversions, i.e. from the Colorado River to the growing cities along the Front Range east of the Continental Divide, particularly under junior priorities, are the most expensive option for supplying Colorado's water needs. They are also the most environmentally damaging. Why choose this approach when there are faster, smarter and cheaper alternatives?

One of the lessons of the failed state bond referendum is that all affected entities must be at the table in developing new water supplies. Whether the project involves drying up agricultural land, taking unappropriated water from areas that are themselves growing, or depleting flows in rivers that support a recreation economy, the politics of transbasin diversions demand that those who benefit from such diversions minimize the adverse effects, mitigate those effects to the extent possible and compensate for the remaining losses, even if those loses are lost future opportunities for the exporting basin.

The Bureau of Reclamation can also play a role. The Bureau has developed major water projects across Colorado, many of which serve agricultural users. As is true elsewhere in the west, agriculture consumes close to 90% of the water used in Colorado. Virtually all of Colorado's growing water demand is municipal. Given that the state has a mature water supply infrastructure, which stores and delivers 7.5 MAF of water annually, this existing infrastructure must help satisfy increased urban demands, as well as recreational and environmental needs. The Bureau must pursue reoperation of its projects, or the reallocation of water within these projects, to provide additional urban supplies, while maintaining riparian and instream resources and rural economies. In addition, Congress should take action, or encourage the Bureau to act, to:

- Streamline the processes required to allow cooperative use of federal water infrastructure for water development and delivery. Cooperative utilization of federally and locally owned water supply and distribution infrastructure would greatly expand our ability to move water up and down the Front Range and to water short areas on the west slope. Without this cooperation, water users may be required to build expensive and environmentally damaging new projects that would otherwise be unnecessary. For example, if Denver could expand its north end system at least in part via the Bureau's Colorado-Big Thompson project and Windy Gap, wheeling the water through this system to the northern suburbs Denver supplies, this would save additional pressure on the already over-depleted Fraser and Williams Fork Rivers in the Colorado Basin. Similar opportunities exist on the Arkansas River, with the Bureau's Fryingpan-Arkansas Project, and other Bureau reservoirs in that basin.
- Pursue opportunities to increase conservation for Bureau projects and activities. For example, the Bureau can modify existing water supply and delivery infrastructure to reduce physical losses of water within a system to create additional supplies. (Such

supplies can then increase out-of-stream deliveries and/or supplement environmental flows.) The Bureau can also define what constitutes beneficial use for water used from its projects, as well as what constitutes waste.

- When evaluating existing infrastructure for modernization or rehabilitation, consider the outright removal and replacement of existing infrastructure with alternative means of supply, including conservation.

Finally, everyone recognizes that environmental values are an integral part of Colorado's quality of life and increasingly recreation-based economy. We should recognize and develop state policy that ensures that water projects do not have significant adverse environmental effects. Where possible, we should restore the rivers and streams that past water policies have left high and dry.

Protecting Rivers Given Drought & Growth

We value our rivers for their ecological, recreational and aesthetic benefits. Already, too many of Colorado's rivers and streams are dry at some times of the year. This is true even though water drives Colorado's increasingly recreation-based tourism economy. At the same time, there is increasing pressure to withdraw more water to supply Colorado's growing population.

Not only has Colorado's water allocation system failed to protect many rivers and streams for these ecological, recreational and aesthetic benefits, but some of Colorado's water conflicts now exist because the water allocation system that has served for 150 years to deliver water to agriculture and cities, failed to provide adequate protection for endangered and threatened species who rely on Colorado's native water supplies. These species, like all aquatic life as well as those other species who depend on aquatic life or habitat, need some portion of the natural flow regime (i.e., high spring flows, trailing off over the rest of the year) to survive. Yet, there is not enough information available regarding how much of the natural hydrograph must be preserved to sustain native and wild aquatic species as well as riparian functions. Federal agencies could advance the science regarding environmental flows.

We need to protect the environment that makes Colorado the special place it is, even in the face of drought and growth. Trout Unlimited hopes that Colorado can demonstrate to the rest of the West that growth and conservation can proceed hand in hand. Here are a few ways we can do so under existing laws.

- Enforce against the wasteful use of water. Our courts and constitution impose on every water user a duty to use water in a wise and efficient manner. Unfortunately, the prior appropriation system's "use it or lose it" imperative conflicts with Colorado's constitutional ban against wasting water. Both the state and the Bureau could do a better job of defining waste and limiting diversions to what is necessary for beneficial use.
- Allow federal agencies to help protect the state's rivers. Federal agencies have some authority to protect Colorado streams. Unfortunately, most Colorado water users

object to the agencies' exercising their authority, even when the agencies are trying to prevent streams crossing national parks, monuments and forests from dry up or serious impairment.

- Convert diversionary water rights to instream flow protection. In some cases, the only way to restore dry streams is by purchasing or leasing senior water rights and then putting that water back into the stream. The Colorado Water Conservation Board currently has the authority both to buy and seek donations of rights for conversion. The Board should pursue these aggressively. There may also be federal funds available for these purposes, for example, from the Land and Water Conservation Fund or through some of the Farm Bill accounts.
- Continue to add to the Board's portfolio of instream flow rights on streams that would benefit from this protection.
- Enforce existing instream flow water rights to the maximum extent under the law. The Board has no field personnel to determine whether its rights are being satisfied.
- Encourage both agricultural and municipal conservation to stretch existing water supplies and thereby reduce the need for new dams and diversions.
- Invest in better stream monitoring to enhance enforcement of instream flow rights and provide data on stream health. This is another place where the federal government could assist. Research to quantify the flows that will sustain aquatic species has been quite limited. Only within the last decade have articles appeared regarding the importance of maintaining natural hydrographs both to maintain instream and riparian systems and values. More is needed.

To protect the environment, Colorado must also develop new strategies. Other western states have tried and proved effective all of the following:

- Add conservation requirements to decrees for new or changed water rights.
- Create incentives for agricultural water salvage as Oregon and Montana have done.
- Condition new or changed water rights to minimize or mitigate the adverse effects on water quality, fisheries and the environment, as the laws of South Dakota, Oregon and Utah provide, and;
- Allow existing water rights holders to convert their rights to instream protection, either temporarily or permanently, as is allowed in California, Arizona, Nevada, Alaska, Montana and Oregon.

Finally, in addition to the scientific research mentioned above, there are things federal agencies with land and water management duties in Colorado can do to restore or sustain environmental flows.

- Explicitly integrate environmental restoration into all water management actions by approving future water development, management changes, water supply contracts or transfers only if they are designed and operated to provide a net environmental restoration benefit;
- Evaluate the possibility of developing leasing arrangements to provide environmental flows with only occasional interruptions in times of extreme drought, such as the state

program instream flow donation agreement between the City of Boulder and the Colorado Water Conservation Board.

Avoiding the Crises

In Water 2025, the Secretary of Interior identified the Front Range as one of the West's "red zones," at or near a water crisis. Certainly, most of the region's large water suppliers are currently undertaking projects to deliver more supplies to this fast-growing region. The cities of Denver, Aurora and Colorado Springs, along with the Northern Colorado Water Conservancy District, which supplies both agricultural and municipal users in the Ft. Collins-Greeley-Loveland area, each have projects for which the NEPA scoping process just closed public comment. There are additional projects that these suppliers are discussing, including another small reservoir on the Eagle River, a Colorado River tributary, which could benefit both the Front Range and West Slope interests. Together these projects may deliver close to 300,000 new acre feet of water, some of which will come from the Colorado River Basin.

In recognition of the need to work more collaboratively on water projects, many of these same Front Range water suppliers have engaged with some of the west slope counties that would be the most affected as a result of increased transbasin diversions to identify not only the impacts of their projects, but also the water short areas within these exporting counties. The Upper Colorado River Study (UPCO), five years in the making, is a landmark effort to examine ways in which the water transfers everyone knows are coming can be done in a manner that is the least disruptive to local interests.

Unfortunately, not all of Colorado's water suppliers have engaged in such far-sighted planning. In addition, some of Colorado's fastest growing counties have been relying on non-renewable ground water that is proving not to be as long-lived as had been envisioned 20 years ago. Thus, these localities, many of which are at the southern end of Denver's metropolitan area, need help. One new study suggests that "conjunctive use" of water, i.e., using surface water directly and to replenish ground water in wet years while pumping ground water to repay surface water rights owners during dry years, may work to alleviate the problems in the south metro area. Certainly, TU hopes that the on-going negotiations regarding this approach succeed, given that the alternatives, including new transbasin diversions, are likely to be significantly more expensive and environmentally damaging.

To solve the problems facing the south metro Denver area, as well as other areas around the west, additional federal research and information programs monitoring both surface and ground water resources would be helpful. While ground water development and management is within state authority, federal research could help states and localities better understand this resource, as well as how to accomplish recharge and how to utilize water stored in federal projects to do so. Given the apparent over-reliance on ground water in Denver's southern metropolitan area, such additional research could provide necessary information to water planners that might help them make intelligent choices regarding supply options.

Lastly, another research arena for federal scientists is the likely effects (if any) of climate change on Colorado's water supply. Federal research on the impacts of climate change could help water managers better understand how to plan for and accommodate changes in runoff associated with predicted changes in climate. For example, most climate change models predict a loss of runoff in Colorado that far exceeds the state's unused increment of its compact entitlements and equitable apportionment decrees. Validating these model estimates, as well as explaining the system dynamics that might cause this result, would provide important information to local water providers in Colorado and around the West trying to plan for the future. Certainly, no one wants new crises to arise due to failure to plan for an adequate water supply in light of changes to expected supplies resulting from global warming.

Thank you for this opportunity to present my views. I would be happy to answer questions.